

MacCallan

HISTORY OF OPHTHALMOLOGY IN EGYPT



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membrane is surrounded on both sides by liquid. Pressure exercised on one part of this liquid mass does not force the retina against the wall—the fluid at the back preventing any such pressure being effective. A part may perhaps be forced out through the lymph paths, but owing to the great increase in the percentage of albumen in a part of the retina, there will undoubtedly be osmotic action in which the retina acts as a semipermeable membrane.

This explains why fluid enters in front of the retina and is discharged at the back.

I consider the effect of colmatage is partly due to this, and that it plays an important rôle in these cases in which the retina adheres after colmatage.

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## THE HISTORY OF OPHTHALMOLOGY IN EGYPT

BY

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LONDON

AN important communication on the history of ophthalmology in Egypt was made by Dr. Meyerhof at the Annual Congress of the Ophthalmological Society of Egypt in this year. It deals mainly with the Nineteenth Century, but his preface contains some items of great interest concerning earlier times. The excavation work of Dr. Reisner near the Pyramids of Giza is well known to Egyptologists, and his recent discovery should be known to ophthalmologists. He has found the funeral stele belonging to the earliest known oculist of human history, whose name is PEPI-ANKH or IRI. He practised both as an oculist and a magician at the court of one of the kings of the Sixth Dynasty, about 2500 B.C. This interesting document will shortly be published by Professor Junker of Vienna in the *Aegyptische Zeitschrift*.

The development of ophthalmology as shown in early Arabic literature has been studied also by Meyerhof, and an article on the subject appeared in the February number of this journal.

The first famous medical traveller in Egypt was the Venetian, Prospero Alpino, who sojourned in Cairo from 1580 to 1584. He published in Venice a book which saw many editions, the last



On one of the first occasions that he saw colmatage performed, Professor Snellen made the following remark: "I wonder whether the loosening of the conjunctiva does not also give rise to increase of pressure." And a light is thrown on this remark by the following account. For if the pressure-increasing action of colmatage is due to symptoms of inflammation as shown by the increase in the percentage of albumen and in the width of the vessels the simple fact of the loosening of the conjunctiva must have a similar though less pronounced effect. The right eye of a rabbit of 3100 gr. had a tension of 20 mm. Hg.; after the conjunctiva had been loosened the pressure remained 20 mm. Hg. Here pressure increased very little, but may have risen temporarily. The left eye of the same rabbit had a percentage of albumen in the fluid of the chamber of 0.03 per cent. There was in the fluid of the chamber of the right eye a percentage of albumen of 0.05 after ten hours. Here there is an appreciable rise. Both these figures show that in principle Snellen was right. In short my contention is, that Lagrange's opinion, that increase of pressure after colmatage is caused by a constricting ring formed by cicatrization, has never been definitely proved.

Most decidedly it is not the only cause of increase in pressure. Certainly colmatage does bring about an increase of intra-ocular pressure. There is a considerable increase in the percentage of albumen in the anterior chamber of the eye. And the question arises; does not this increase, which is considerable even in rabbits with normal eyes, become more pronounced in eyes in which there is a detachment of the retina?

The views entertained at present about hydrodynamic and osmotic forces in their relation to intra-ocular pressure, make it reasonable to suppose that the rise of colloid osmotic pressure in the fluid of the chamber will be followed by an increase of intra-ocular pressure. Here we have at any rate one factor that certainly plays an important part. Then what we know about the width of the vessels in the eye in connection with intra-ocular pressure also fits into our scheme. It is not impossible that the constricting ring of Lagrange may play a more or less important rôle in some cases. In any case the discharge will be impeded on account of the increase of viscosity of the fluid in the chamber. These are all factors which make for increase of pressure in the eye, and there may be others with which we are at present unacquainted.

Tension increases; now the question is, does the fact of the increase of intra-ocular pressure also imply that the retina is pressed against the wall of the eye. An answer in the affirmative is not possible until the matter has been more thoroughly investigated.

The condition which exists in detachment of the retina may be conceived of thus: in a space filled with liquid, the eyeball, a membrane partially detached is suspended—in other words—the

being that of 1829. Prosper Alpinus, as he is usually called, gave the first exact records of the prevalence of ophthalmia in Egypt and of its increase during the hot season.

In 1598, Baron Harant of Poljitz, a Bohemian gentleman, visited Cairo and wrote a most original and intelligent description of his journey, a German translation of which appeared at Nuremberg in 1678. He was the first to describe the masses of flies on the eyes of the children, and to express the opinion that the flies were the cause of the ophthalmia, "as they soil, eat and infect them." The travels in Egypt of Tourtechot de Granger were described in a book published in Paris in 1745, wherein Egypt for the first time is called the "Land of the Blind."

That fascinating book "Travels to Discover the Source of the Nile," by James Bruce contains some details of interest to ophthalmologists. The seven volumes of the edition published in Edinburgh in 1813, containing the book-plate of Sir Auckland Colvin, were presented to the present writer as a token of friendship by Meyerhof, some years ago, or he would no doubt have given extracts. Bruce was a Scottish gentleman, who came to London when a young man, and married the daughter of a prosperous wine merchant; after her death he travelled much on the Continent, and, with a view to voyages of discovery in Abyssinia, became British Consul at Algiers. In 1769, he went up the Nile to Kus in Upper Egypt; from thence across the desert to Kosseir on the Red Sea. From thence he proceeded by sea to Massowah, and penetrated to the interior of Abyssinia where he lived for several years, refusing important administrative positions, but placed in military commands occasionally during fighting. He returned *via* the Soudan, reaching Cairo in 1773. During a visit to Assouan, the Syene of Pliny, on his outward journey, he writes "though Syene by its situation should be healthy, the general complaint is a weakness and soreness in the eyes; you scarcely ever see a person in the street that sees with both." This observation was made in January, during the cool season when the average mid-day temperature is 23.7 degrees C.; the various micro-organisms which cause acute conjunctivitis have then full activity. Had Bruce's visit been made in June, July, or August he would have seen the same number of blind people perhaps, but very few with acute ophthalmia, as with a mid-day temperature of over 41 degrees, the micro-organisms causative of the inflammation become dormant, or at any rate their activity is restrained.

### The Nineteenth Century

It is a well-known fact that Egyptian or Military Ophthalmia, as it was then called, attacked nearly all the European armies during the Napoleonic wars. It was a mixture of trachoma,

blennorrhoea, and more harmless forms of conjunctivitis, probably mostly due to infections by the Koch-Weeks bacillus. It lasted until about 1850, and its history has been told again and again by physicians and surgeons. The Italian and German oculists shared the British opinion as to its contagious character, which was constantly denied by the French, and by several of the Belgian and Russian observers.

The Napoleonic campaign in Egypt has an important ophthalmic literature, much of which is referred to by Boldt (translation by Parsons and Snowball, London, 1904). The chief authority, as is well known is Larrey, but Meyerhof with the enthusiasm of a real bibliophile gives a number of others. Some of these seem to be sufficiently interesting to enumerate here: McGrigor, "Medical Sketches of the Expedition to Egypt from India," London, 1804; George Power, "Attempt to Investigate the Cause of the Egyptian Ophthalmia," London, 1803; Briggess in Trotter's "Medicina Nautica," London, 1804; Arthur Edmondston, "A Treatise on the Varieties and Consequences of Ophthalmia, with a Preliminary Inquiry into its Contagious Nature," Edinburgh and London, 1806; Douglas Whyte, "Mode of Managing Ocular Inflammation," *Med. and Phys. Journal*, 1802; Wittmann, "Travels in Turkey and Across the Desert into Egypt," London, 1803; Louis Frank, "De l'Ophthalmie d'Egypte," Paris, 1812; Deruez, "Essai sur l'Ophthalmie d'Egypte," Strasburg, 1804; Desgenettes, "Histoire medicale de l'Armée de l'Orient," Paris, 1802; Bruant, "Notice sur l'Ophthalmie regnante," Paris, 1800; Savaresi, "Descrizione dell'Oftalmia d'Egitto," Cairo, 1800.

### From 1800 to 1825

The French scholars who accompanied the Emperor Napoleon to Egypt found no trace of scientific medicine remaining: the old Arabic traditions were lost. The only hospital in Cairo, and probably in the whole of Egypt, was that founded at the end of the Thirteenth Century by the Mameluke Sultan Qalawun. It had degenerated to a dirty prison by 1800, where a few insane patients were kept in chains and treated with the whip. Immediately after the evacuation of Egypt by the French, their important sanitary institutions were destroyed or disorganized, in particular their ophthalmic hospital at Giza.

In 1805, Mohammed Ali, an Albanian adventurer, was nominated Pasha of Egypt, from whom the present sovereign is descended. Very soon the extraordinary gifts of this energetic and broad-minded ruler became evident. He began to create avenues, squares, and sanitary establishments. He set a brilliant example of progressiveness by submitting one of his daughters to Jenner's



new method of preventing small-pox, thereby attacking one of the principal causes of blindness.

### From 1826 to 1850

When Mohammed Ali Pasha had firmly established his rule the urgent needs of his army compelled him to organize a sanitary service. In 1825, he nominated Antoine Clot, a young French physician, as chief surgeon of the Egyptian Army, who will for ever be known as the illustrious Clot Bey. Clot Bey constructed a large military hospital and medical school at the depot of the army where 25,000 men were gathered together. The lectures of the European teachers had to be translated to the classes by interpreters. Then two learned brothers named el-Rashidi were sent to France for medical and linguistic education, who on their return translated and printed in Arabic some of the more important textbooks, including Sichel's textbook on ophthalmology. The difficulties arising from religious prejudice a hundred years ago may be imagined, and once Clot Bey's life was attempted in the anatomical theatre while performing an autopsy. Moreover envy and animosity among Europeans, and intrigues at the Pasha's court created many obstacles to Clot Bey's scheme of organization. In 1837, the military hospital was transferred to new buildings at Qasr-el-Ainy in Cairo, where there was accommodation for 1,500 sick soldiers and 300 medical students. Clot Bey and his assistant and successor Pruner, a capable German, left short writings on eye diseases in Egypt and on their treatment. Each rejected the theory of contagion in the case of both ophthalmia and plague. Clot Bey during his twenty-five years sojourn in Egypt suffered seventeen attacks of ophthalmia, to which he attributes the loss of vision in one eye, though this was more probably the result of detachment of the retina. During the wars of Mohammed Ali Pasha, Clot Bey saw thousands of Greek prisoners suffering from ophthalmia immediately after their transport to Egypt: the same was the case among the Syrian recruits sent to Egypt after 1832; in 1836, more than 20,000 of them were treated for ophthalmia with good results. To Clot Bey belongs the great credit of introducing nitrate of silver and sulphate of zinc into the therapy of acute eye diseases.

### From 1850 to 1880

After the death of Mohammed Ali Pasha and the short reign of his step-son Ibrahim Pasha, there followed under Abbas Pasha (1848-54) a certain reaction against French influence, during which Clot Bey was temporarily replaced by his German assistant Pruner Bey. The latter sent several medical student missions to Europe,

one of which visited Gratz in Styria. Here the oculist Pieringer was working, who succeeded, aided perhaps by information obtained from the Egyptian students, in proving the identity of urethral and ocular gonorrhoea, and in separating clinically the blennorrhoea of the human eye from the other forms of acute conjunctivitis (Pieringer, "Die Blennorrhoe am Menschenauge," Gratz, 1841). The distinguished Greek ophthalmologist Anagnostakis visited Egypt in 1851 and found the teaching of ophthalmology at Qasr-el-Ainy in the hands of a young native oculist who had received part of his medical education in Paris. However he had little success as the preliminary education of the medical students had been unsatisfactory, all the primary and secondary schools founded by Mohammed Ali Pasha having ceased to exist (Anagnostakis, "De l'Ophtalmologie en Grece et en Egypte," *Compte-rendu du Congrès d'Ophtalmologie de Bruxelles*, 1857; Paris, 1858). Anagnostakis should be remembered in trachomatous countries for having devised a satisfactory operation to correct entropion, at a time when either useless or devastating operations were in vogue. In 1856, in the reign of Said Pasha the Qasr-el-Ainy hospital and school of medicine were reorganized by the minister Edhem, competent European teachers being obtained. About this time there was a certain amount of ophthalmic treatment carried out by general surgeons, but the study of ophthalmology was neglected.

A new era began in 1869, when Dr. Tachau, a pupil of Albrecht von Graefe settled in Cairo and later in Alexandria. He was the first to introduce the modern operations for cataract and glaucoma, also plastic operations on the eyelids to relieve the sequelae of trachoma. After Tachau, Dr. Brugsch Bey settled in Cairo and had an enormous practice from 1878 until his death in 1894, after he had been nearly blinded by membranous conjunctivitis.

#### From 1880 to 1900

Egypt may be proud of the fact that the bacteriological era was partly inaugurated on her soil. Robert Koch in 1883 came to Alexandria to study the epidemic of cholera then raging. Besides discovering the comma bacillus, he examined the discharge from the eyes of persons suffering from ophthalmia in the summer, finding the gonococcus (discovered by Neisser in the urethral discharge in 1879), and in the slighter cases the thin rod-shaped bacillus (rediscovered five years later by John Weeks in New York), known as the Koch-Weeks bacillus. Kartulis, a distinguished Greek surgeon interested in bacteriology working at Alexandria, thought the Koch-Weeks bacillus was the cause of trachoma.



Decisive progress in the bacteriological investigation of ocular infections in Egypt was made when Morax of Paris, in 1901, working at Alexandria, showed us how to distinguish the acute affections of the conjunctiva one from another, and from the chronic disease trachoma. He discovered the bacillus which is known as the Morax-Axenfeld bacillus (Morax, "Recherches cliniques et bactériologiques sur la conjunctivite granuleuse," Paris, 1902. Separate reprint from the *Annales d'Oculistique*). The work of Morax was continued by Lakah and Khouri (*Annales d'Oculistique*, 1902).

In 1889, Julius Hirschberg made a winter stay in Egypt and later published at Leipzig in 1890 an exhaustive historical and clinical study of trachoma. Ernst Fuchs visited Egypt at the end of the nineteenth century, as he has done many times since, and published sketches of what he had seen on the Nile.

There have been several Egyptian oculists of distinction, whose names are household words in Egypt, though long since dead. Eloui Pasha the chief of these received his medical education in France, and became Professor of Ophthalmology at the Government Medical School in Cairo. He read an interesting paper on trachoma at the International Congress of Medicine held in Cairo in 1902. It is interesting to remember that he ceased to be a member of the Ophthalmological Society of Egypt in 1911, as objection was raised by members to widespread advertisements issued by a drug store in which he had a financial interest, of "Dr. Eloui Pasha's Eye Drops." Other specialists were Saad Bey Sameh, Owf Pasha, and Ali Bey Haidar. Among the many foreigners practising in Egypt first must be noted Max Meyerhof to whose erudition the material of this article is due; Alfred Osborne, a pupil of the Archduke Karl Theodor, whose suggestion of utilizing the Cassel ophthalmic benefaction for the provision of travelling ophthalmic hospitals, was accepted; Peretz, a pupil of Truc of Montpellier; Demetriades and Jacovides, both of whom still practise at Alexandria.

Shortly after the British occupation of Egypt in 1882 Kenneth Scott, and later Fischer, occupied the post of chief ophthalmic surgeon at Qasr-el-Ainy; under them a very adequate teaching organization was developed. One of their assistants was a very dexterous Egyptian surgeon, Bayoumi Bey, from whom the present writer obtained much practical help.

#### From 1900 to the present day

Dr. Alfred Osborne of Alexandria, who has been mentioned above, at the same Annual Congress of the Ophthalmological Society of Egypt, made a communication on the ophthalmic history of Egypt from 1900 to the present day. The important

clinical, pathological, and historical work carried on for many years by Osborne, Meyerhof, and Peretz should always be remembered, when stress is laid on the more spectacular work carried out by the present ophthalmic organization of the Egyptian Government. This originated in the financial provision of two travelling ophthalmic hospitals by Sir Ernest Cassel. Their success under careful professional and political management has allowed the development of the numerous specially designed and built ophthalmic hospitals in the larger towns, while travelling hospitals tour the more remote districts. There is a special teaching hospital in the environs of Cairo, and adjoining it a special ophthalmic laboratory, which is a separate and monumental building, and is probably the best ophthalmic laboratory in the world. At the present time a British ophthalmologist and a British pathologist receive from British sources adequate remuneration for teaching and research work, and it is expected that their labours will throw further light on the causative factor of trachoma. The staff of the Ophthalmic Hospitals (which form a section of the Department of Public Health) consists of Egyptian surgeons, two for each hospital, who received their post-graduate ophthalmic training from the former British Director of the Egyptian Ophthalmic Hospitals, between 1903 and 1924. The annual cost of the Ophthalmic Department to the Egyptian Government is now about £60,000 a year. A prosperous and scientific school of ophthalmologists has therefore arisen in Egypt so long called the "Land of the Blind." The Ophthalmological Society now has 100 members, and publishes an annual bulletin containing an account of its activities, copies of which may be obtained from the honorary secretary of the Society (c/o the Department of Public Health, Cairo). The reports of the British Director of Ophthalmic Hospitals have been printed and published from 1912 to 1922 by the Government Printing Press, Cairo, containing accounts of clinical and pathological research.

Since arrangements for ophthalmic treatment have been provided in most of the large towns and even in the remote country districts, it will naturally be asked if there has resulted any appreciable diminution of blindness. This may be answered by Professor Fuchs, certainly one of the best ophthalmic observers now living, who wrote in 1924: "The result of these campaigns against diseases of the eye is best noted by the decrease in the number of blind persons. When I visited Egypt for the first time some 30 years ago it was a common sight in the larger towns to see four or more blind persons being led about through the streets by a half-blind man."

The Fourth International Congress for the Amelioration of the lot of the Blind was held in Cairo in 1911, when proposals were

made for the establishment of a vast educational establishment for the blind (*vide* the *Ophthalmoscope* for December, 1911). Such a scheme would have diverted Government funds from the then barely established organization for the treatment of eye diseases and required some trouble to defeat. The lot of the blind in Egypt is not so hard as in other countries, and as Dr. Osborne points out it is difficult to get inmates for the existing blind schools at Cairo and Alexandria.

A systematic and regular ophthalmic inspection of the schools is now carried out by the ophthalmic staff of the Department of Public Health, which is combined with an efficient organization for treatment of those with active trachoma or other forms of conjunctivitis, in the schools themselves.

Dr. Osborne concludes his paper by saying: "Egypt may well be proud of what has been achieved."

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## SOME NOTES ON SARCOMA OF THE UVEAL TRACT

BY

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IN Vol. XIII, p. 104, of the Ophthalmic Hospital Reports, Lawford and Collins published a paper giving details of a series of 103 cases of sarcoma of the uveal tract treated at Moorfields from 1871-1890. Marshall followed this in Vol. XV, p. 51, with a series of 58 similar cases from 1891-1898. The present paper records a similar series of 35 cases, at Moorfields in 5 years, October, 1918-October, 1923.

*Frequency.*—The first point of interest is the consistent yearly incidence at Moorfields. Over the whole period, 1871-1925, 55 years, there are recorded 345 cases where an excised eye was found to contain a sarcoma of the uveal tract. This gives an average of just over 6 per year. In the 28 years previously recorded there were 161 cases, *viz.*, just under 6 per year, and in my collected cases the average is exactly 7.

In the other series a few extraneous cases were published so that the actual Moorfields figure then was slightly under 6 per year. The regularity of incidence over so many years is somewhat striking, however, although the increase is less sharp than might be expected in recent years when the figures for new patients are almost double those for 1870-1890. One factor possibly bearing on this was the difficulty in pathological work and reports in the years



just around the end of the war. Through this a few cases may have remained unrecorded.

The figures usually given are 3-6 cases per 10,000, but by the numbers at Moorfields it works out at more like 2 per 10,000 or even under that now, when the increase in refraction work is apparent.

It may be supposed that some cases of detachment of the retina due to an unsuspected uveal sarcoma are not subjected to operation and later go elsewhere, but such must be very few indeed.

*Sex.*—It is usually stated that males predominate slightly in frequency in choroidal sarcoma. In the total number of 345 cases recorded at Moorfields there are 175 female, 167 male, and three not recorded. These numbers include a few cases of iris sarcoma in which female incidence is more common. In the 35 cases in this series there are 23 females to 12 males (65.7 per cent. to 34 per cent.). Three cases (two females and one male) were of iris sarcoma, but even after exclusion of these there is a very unusual preponderance of female incidence.

*Age.*—Average age, Lawford's and Collins series, 48.42; Marshall's series, 54.63; recent series, 50.4 (youngest, 13; oldest, 71).

*Eye affected.*—The total figures do not show that there is any reason to believe one eye to be more frequently affected than the other.

*Tension of the eye at operation.*—In this series tension was noted as normal in 18 cases, and raised in 16. The bearing of this upon the ultimate result does not help much in view of the small number of traced cases, but it at least shows how often the condition arrives at the stage of acute glaucoma before advice is sought.

In one case the tension was noted as below normal and in this case the ciliary body was involved in the growth—the usual state of affairs when tension is low—in the other two cases where the ciliary body was noted as being definitely involved the tension was not raised in one, but raised in the other. Of the three cases where the sarcoma arose in the iris, two showed increased tension.

*Nature of growth.*—Various types of sarcoma were found on pathological examination, viz., flat, rounded, lightly, and heavily pigmented, round-celled and spindle-celled—the latter being the more frequent. In one or two the pigment was so slight that the macroscopic appearance approached that of leuco-sarcoma, though section always showed the presence of pigmentation.

*After history.*—I have tried to get in touch with every case in this series, but have only succeeded in 22 cases. Letters have been returned in some cases, no reply sent in others, and outside evidence from the original doctor of the case has not helped me further.

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